

Episode 61: Divided by Delta

Chris Dall: [00:00:06] Hello and welcome to the Osterholm Update, covid-19, a podcast on the covid-19 pandemic with Dr. Michael Osterholm. Dr. Osterholm is an internationally recognized medical detective and director of the Center for Infectious Disease Research and Policy, or CIDRAP, at the University of Minnesota. In this podcast, Dr. Osterholm will draw on more than 45 years of experience investigating infectious disease outbreaks to provide straight talk on the covid-19 pandemic. I'm Chris Dall, reporter for CIDRAP News, and I'm your host for these conversations. Welcome back, everyone, to another episode of the Osterholm Update podcast. As I'm sure many of you have noticed, this is not the familiar voice of our usual podcast host extraordinaire, Chris Dall. Chris is taking some well-deserved time off work this week. Instead, standing in as host for this episode of the podcast will be me, Cory Anderson, current research assistant at CIDRAP. For the many of you who are members of the podcast family and have grown to know and appreciate Chris, he will be back next week to continue his role as host of the Osterholm Update podcast. Yes, you heard that correctly. We are returning the podcast to a weekly status. As will be discussed throughout today's episode, The world and the US has entered a new and dynamic era of this pandemic. To respond to this reality and ensure that you, the listeners, are receiving information in a timely manner, we will once again produce weekly episodes of the Osterholm update. Our hope is that this will not be necessary for the long term. As we have shared with you, our podcast family will be here for you as needed. And now onto what you have been waiting for this past spring, Dr. Osterholm stated that the emergence of covid-19 variants represents a whole new ballgame for this country and the world. At that time, the more transmissible alpha variant, otherwise known as B117, was linked to record high activity throughout much of Europe and in parts of Asia and the Middle East. Although large portions of the US were subsequently spared from an alpha driven surge, the message was clear. The sars-cov-2 virus was and is far from done with us. Now the world is transitioning from Alpha to Delta, the most transmissible variant we've encountered to date. More than 124 countries have detected the Delta variant, which the World Health Organization anticipates will soon become dominant worldwide. In this episode of the podcast, we'll be taking a closer look at the impact of Delta, both in the US and abroad. We'll also address concerns about misinformation, particularly as it relates to the vaccines, examine lessons we can learn from mixed messaging that is sometimes challenge public health, answer covid query, and share a

beautiful place that has helped one of our listeners get through this pandemic. But first, as always, we'll begin with Dr. Osterholm's opening comments and dedication.

Michael Osterholm: [00:02:55] Thanks, Cory. Yes, in fact, Chris isn't with us this week, but we are in good hands with Cory. He is a valued member of our team at CIDRAP, and I think probably one of the most informed people I know on the epidemiology and overall impact of covid in our world today. And so it's great to be on this podcast with you. So thank you very much. And as you, our podcast family, just heard, we are going to go back to the weekly updates. It's clear that with the situation with Delta, not only in the United States but around the world, that many things are happening that are just too much information to go to an every other week format. So for those of you who wrote in and wanted more information, please know we heard you and we will continue to do the weekly podcast until we actually get this pandemic under much better control. So thank you again for being with us. I also want to just come back to a point that I've heard in terms of feedback over and over again from so many of you who listen to this. It's not about just the numbers. The numbers are very important, but it's what those numbers represent. And I just want to continue to emphasize that as we go through today's podcast and we talk about numbers of cases and we talk about some of these abstract issues, that more now than ever, people are reflecting back on what this means for their family, for their friends, for their colleagues, people who have names, who have faces, people have tears, people have smiles. And so, again, on this podcast, if it appears to be at a point, a lot of numbers, please know in the first instance we understand where those numbers come from and we never forget that. It is in this light that I offer our dedication today. Today's dedication really comes from the pain and suffering that we have all suffered. But those joyous moments that still in that world of pain and suffering emerge. I'm sure many of you remember, if you have been routine listeners of this podcast, that back on last October 8th, on our 27th episode, I discussed a situation that occurred within my own family. At that time, my niece and her husband Dan and their three children lost their home in the Santa Clara fire. And it was a devastating situation. But what was even more devastating was when that fire struck, they had minutes to get out of their home and were able to find their pets with the exception of one, their cat, Momma Kitty. And it was at that time considered as their house burnt to the ground, very little likelihood that Momma Kitty survived. In fact, it was six weeks and two days later, the momma kitty was not only seen, but with the help of a local organization that were able to put food out for her and capture in a live trap. She had a sizable burn in the

top of her head, one in her cheek, but doing well. Somehow after six weeks, what a miracle. After having been scrubbed up, cleaned up the wounds, taking care a bit, Momma Kitty fell asleep in the chest of one of my grand nieces, just like she had done for many years before. We dedicated that episode to Momma Kitty and all that she represented getting through that horrible, horrible situation. Well, today we have a somewhat similar story in which is all of, you know, the horrible situation that happened in Surfside, Florida, with the collapse of the condominium there and the terrible loss of life that occurred with it. Well, there's another story about the nine lives of a cat. Binks, the cat, was reunited with his family some 16 days after the collapse. Binks had been found wandering in the collapsed material for several days. And at one point, the animal rescue people took Binks back to an animal shelter, advertised the fact that they had found Binks. There were family members who had survived, the Gonzalez family. One of the many devastated by the collapse actually were missing their very loved Binks. Angela Gonzalez and her 16 year old daughter had fallen several stories when the building collapsed along with Binks. And Angela broke her pelvis but still managed to drag her child from the rubble. Unfortunately, Edgar Gonzalez, the father, was not so fortunate. He died in that terrible, terrible situation. But when Binks saw his family, he responded as such and they in turn had their miracle. They had their kitty back. So this podcast is dedicated to all of us who have to find the resilience, who have to understand that amongst all this pain and suffering, there can still emerge those moments of joy, of happiness. So Binks to you and your nine lives, Mama Kitty, to you and your nine lives, we all owe you a debt of gratitude. And we're so very, very happy that your nine lives bring us the joy and hope for the future.

Cory Anderson: [00:08:11] Mike, we've been seeing numerous countries administer covid vaccines to their populations since the turn of the year. Although the stark gap in global vaccine access continues to be a challenge, nearly 40 countries have administered at least one dose of vaccine to 50 percent or more of their population. These successful vaccination campaigns, coupled with global declines in cases and deaths for the better part of two months, left many feeling optimistic. However, the emergence and spread of the Delta variant seems to have reversed these trends in recent weeks, with WHO Director General Tedros reporting last week that, quote, "We are now in the early stages of a third wave." Mike, what are we seeing play out at the international level?

Michael Osterholm: [00:08:52] As we've been discussing on this podcast for months, the variance or game changer. With the advent of the alpha variant transmission around the world, we saw enhanced transmission. We saw the potential for even more severe illness, and it was a harbinger of things to come. Now, we in the United States did not get hit hard with that alpha. As you know, I was among those who thought in January and February that it would sweep through the United States. Why it only impacted in Michigan and Minnesota in any substantial way is still a question we can't answer. If you look at our neighbors to the north, Canada had a classic major peak in April and May with B117 that exceeded their previous peaks. So at this point, one could argue, well, the variance may not always spread throughout a country and do what they do. But what we're seeing globally right now is a very, very different picture. This virus is not only taking over a country, it is taking over the world. Now, some of the really critical issues around Delta, deal with two factors. One is more transmissibility, more highly infectious. The second is the potential to evade immune protection from either vaccination or previous infection. A study from China, which recently published, in this study, individuals were followed who had had contact with someone with the Delta variant infection. These follow ups began literally the day of the exposure, and it was found, first of all, that the Delta cases begin shedding virus up to a day before we see the same kind of shedding pattern with other sars-cov-2 virus infections. But in addition, based on PCR testing the viral loads in the Delta, cases were a thousand times higher than the viral loads in non-Delta cases upon that first detection. That's remarkable. This is exactly why we see the increased transmission with Delta like we've not seen with any other variants. So we have to understand that this virus has very unique properties in that regard and we don't know what the next one will bring, but this one's bad enough. In addition, we know that for those individuals who are incompletely vaccinated, meaning a single dose of mRNA vaccine or AstraZeneca vaccine actually have a reduced level of protection against the virus. In a study from the United Kingdom, it's been found that if one has only one dose of an mRNA, a vaccine or the AstraZeneca vaccine, that in fact there is less than the same protection seen than it was with other variants, meaning that individuals still had protection against severe illness, hospitalization and death, but that, in fact, they would become clinically ill. So this is really a virus that we must take very, very seriously. And it really is explaining a lot of what's happening right now around the world. If one looks at Delta in countries with higher vaccination rates, we see that they're not at all invulnerable from Delta, although it's lasting footprint is shaping up to be less dramatic in these places than in the other

parts of the world that don't have vaccine. If you look at Delta in Israel, a country with the world's highest vaccination rates, 63 percent of the entire population has at least one dose and 58 percent are fully vaccinated. For those 60 and older, 90 percent plus are fully vaccinated. Yet dealing with Delta drove an uptick in cases over the past month has been a real challenge for them. The seven day average for cases has risen from 29 on June 20th to 987 on July 20th. Increase in cases led to a slight rise in serious illness and death, although the vaccines again are playing an important role in reducing that serious illness picture. When you look back at the peak of cases in Israel, they averaged over 1,000 hospitalizations a day. Today, we're only at 129 currently hospitalized and 59 in critical condition. Not good, but a lot less than we saw with that peak. An article from July 18th, when 61 patients were in critical condition, reported that 24 were unvaccinated and 37 were fully vaccinated. However, only 1 of the fully vaccinated patients was under the age 60, meaning that among those who were fully vaccinated who were in serious condition, they were among those who would be considered elderly and even frail elderly. Of the unvaccinated patients in critical conditions, 14 were younger than 50 and two were younger than 40. A pattern, you're going to understand, is happening in many locations around the world. If you look at Delta in Europe as a region as a whole, it's now approaching an average of 150,000 cases a day, up from 50,000 cases a day just one month ago. The latest surge is primarily being driven by activity in the U.K., Russia, Spain, Portugal and the Netherlands, each of which are experiencing surges in Delta cases. Let's take the Netherlands. If you look at the vaccination rates there for all residents, 67 percent have one dose or more of vaccine, 43 percent are fully vaccinated after a prolonged wave of activity in the past spring, which reached a peak of just over 8,000 cases a day in the Netherlands, it has now dropped precipitously from May through June. The country went from those 8,000 cases a day to an average of less than 6,000 cases a day at the end of June, which is around the time that the country moved to reopen. Now, with the Delta variant present becoming the dominant variant in the country, cases of big doubling every two days in the country, the Netherlands is now reporting an average of more than 10,000 cases a day, up from 600, just three weeks ago. The countries reintroduced restrictions on nightlife in an effort to help limit the surge, with officials saying it is still too early to know what impact the latest wave will have on hospitalization. Another bellwether country in terms of understanding what might happen here in the United States is the United Kingdom. Remember, for all residents there, 69 percent have one or more doses. 54 percent are fully vaccinated. Among

those 18 and older, 88 percent have at least one dose, 68 percent are fully vaccinated. And for those 65 years of age and older, 95 percent are fully vaccinated. Let me restate that for those 65 years of age and older, 95 percent are fully vaccinated. This will be important when we talk about the United States. Over the past week, the UK has reported an average of 47,400 cases a day, a 41 percent increase over this past week. Around 50 deaths a day, which is a 61 percent increase. Now, if we look at daily admissions to the hospital were over 650 new admissions per day, a 38 percent increase. There are now more than 4,500 UK residents currently hospitalized for covid. Nearly a three and a half times increase over the past month. It was at 1,350 on June 20th. While cases are approaching peak highs, fortunately, we haven't necessarily seen the same rates of severe disease and death that we saw with the previous waves. This is surely a outcome of having so many people over age 65 vaccinated. If one looks at the previous peaks that occurred in January, the seven day average cases of 59,500 getting close to those. The seven day average of deaths of 1,250, there they were substantially lower, with now 50 deaths a day. And if one looks at peak hospitalizations of 39,250 during that January surge, peak hospitalizations again are substantially lower at 4,500. So the message here is, is that in this highly vaccinated population there is still a major challenge on the health care system, but there is less severe illness and fewer deaths for the number of cases that are occurring. But at the same time, there's still a very substantial impact. In a July 18th article in the Financial Times, it states, despite the UK daily case rates of more than 40,000, a figure that before vaccine rolls would have led to 800 deaths a day, the current tally is only about 50. So that is the best news message we can give you out of what's happening there. Although vaccines appear to have blunted the impact of Delta on severe cases and deaths, hospitalizations and ICU admissions in England, they still are way above levels they were at the last year, when restrictions were introduced. Even still, the U.K. moved forward with reopening this past Monday. We'll see what's going to happen. So the overall message is we're still early in our Delta journey and there are many unanswered questions. What will Delta do in Latin America? What will happen in the U.K.? Every country is vulnerable to a Delta driven case surge, but the risk of severe disease and death appears to hinge on how much of their population has been vaccinated. Further reviewed disparities and continued global vaccine equities, which was described in a July 18th tweet from John Burn-Murdoch with the Financial Times as, a grim gulf is opening up between the wealthy, mostly vaccinated world and the poor, mostly unprotected. In the UK, vaccines have reduced the case fatality rate roughly 12 fold from 2 percent to 0.16 percent. Meanwhile, in

Namibia, Tunisia, Malaysia and Indonesia, death rates have never been higher. This is a critical, critical issue. So what are we doing to actually improve global access to vaccines? It's estimated that the wealthiest countries will have an excess of 1.9 billion doses in August. And at this point, it's unclear just how will those doses be moved from these wealthiest countries to the rest of the world. Something we have to understand is necessary and critical. So let me just quickly give you a sense of why this is so important. Let me talk about Delta in countries with low vaccination rates. As I pointed out, increased transmissibility of Delta has made these countries even more vulnerable. Although we didn't know the true impact of Delta at the time, India serves as a bellwether of what countries with low vaccination rates are up against. Remember, India's surge in April and May brought about a record high peak of 400,000 daily cases and more than 4,700 daily deaths, which were clearly major undercounts. Although they are in much better shape, India is still reporting around 40,000 cases a day and 500 deaths a day. We're seeing similar situations play out in other countries whose populations largely lack vaccination. One looks at Delta in Asia and the Middle East, the region as a whole, seven day average of greater than 200,000 daily cases, a number only reached during India's surge. Ten countries approaching or having recently experienced record high case levels include Cyprus, Iraq, Iran, Kazakhstan, Bangladesh, Myanmar, Thailand, Malaysia, Indonesia and South Korea. Countries that just a year ago were often cited as having somehow controlled the virus and its transmission. Some countries right now are reporting major large gaps in sequencing. However, Delta is presumed to be responsible for these surges in most of these countries. If one looks at Cyprus, the vaccination rates of the entire population, which does have 42 percent of the population with at least one dose, 36 percent fully vaccinated. Yet it has the highest case rate out of any country in the world where Delta is circulating. Think about these numbers when we talk about counties and states in the United States and what the implications are for that. One looks at Iran has experienced its fifth wave of the pandemic attributed to Delta. Vaccination rates for the entire population only 7.1 percent for one dose, only 2.8 percent fully vaccinated. This past week, it recorded a record high single day total of 27,400 cases. One week lockdowns have been implemented in the capital of Tehran and an adjacent province to help fight the surge. Indonesia, almost all the cases over the past two months have been Delta. Vaccination rates for the entire population, Again low 16 percent, having one or more doses, 6.1 percent fully vaccinated. Currently, they're experiencing record high cases and deaths four times higher than their previous peak at any time during the pandemic.

Japan, anyone who's been following the Olympics knows has experienced a recent wave of cases with a seven day average approaching 3,000 cases a day. Cases have doubled in one month, with Delta presumably playing a role. Nearly half of the cases are in Tokyo, the Olympic host city. As of Tuesday, at least 71 infections have been linked to the Olympics, including infections in two American athletes. And let me just close out the Asian Middle East experience by looking at Russia. Despite the earliest access to vaccines, namely the Sputnik vaccine, most Russians remain unvaccinated. Vaccination rates for all residents are at 22 percent for one or more doses, 14 percent fully vaccinated. Over 90 percent of the cases are Delta. They are now reporting 25,000 cases a day and experiencing record high deaths. The seven day average for deaths is approaching 800. The previous peak earlier in the pandemic was 560. The message here in under vaccinated countries, case numbers are high, deaths are high. The impact on the country is dramatic. If we look at Delta in Africa right now, the region as a whole. Per the latest WHO report out of Africa, 21 countries have detected Delta variant. There's been a decrease in cases and deaths over the past week after two months of increases. Take, for example, the week of July 5th, there were 214,000 cases reported, a record high. The deaths were greater than 5,000, also a record high. However, the week of July 12th, there's been a slight decrease in cases and deaths. But another reality that we must deal with in understanding what's happened with covid really was reflected in a WHO report this week that noted the decline in African cases could be due to the civil unrest in South Africa that has impacted testing efforts and disease surveillance. Seven countries are still at or near the peak of their infection curves. When one considers the world's top countries in terms of highest current death rates, Namibia, Tunisia and South Africa are all in that top 12. In South Africa, as I pointed out, reporting declines after record setting third wave that's been driven by Delta, likely is artificial due to the recent civil unrest. One of the provinces in South Africa, home to Johannesburg and Pretoria, have been hit particularly hard during this most recent wave, reporting its highest totals for cases, hospitalizations, and deaths up to this point in the pandemic. Not surprisingly, only 18 million African residents, equivalent to 1.5 percent of the population, are fully vaccinated. Let me just say, we're also keeping our eye on Latin America. Overall activity there in the region declined the past two weeks, 150,000 cases a day to 100,000. Declines have largely been driven downward by trends in Brazil, Argentina and Colombia. However, now Cuba and Guatemala are reporting record high activity, and cases in Mexico are rising sharply. Again, with the Delta variant now dominant there. Latin America has been one of the hardest hit regions throughout the

pandemic. Keeping an eye on Delta and its potential impact to Latin America is going to be key. The virus clearly is now beginning to circulate widely in this area, and you can expect to see substantial increases in cases in the near future. Let me just summarize the overall general international update. 124 countries have now detected the Delta variant. There is a consistent pattern of Delta spreading to new countries and leading to notable, in some cases, dramatic case increases when it becomes the dominant variant. There has been a major reversal in recent global trends, that has been made apparent by the latest data from the WHO. We are now seeing our fourth consecutive week of increasing global cases that follows eight consecutive weeks of decline. We're also seeing the third week of increase in deaths, this follows nine weeks of declines where we went from a peak of 79,000 deaths the week of April 26th, to a valley of 54,000 deaths the week of June 28th. And now this past week, we were at 57,000 deaths and increasing. So Delta is gaining a foothold in countries with both low and high vaccination rates. As you can see from around the world, that represents a challenge for all countries. However, the tragic difference we're seeing playing out and we'll continue to see play out between countries of low vaccination rates and countries with high vaccination rates is severe disease and death. This reality, largely made evident by wide disparities in global vaccine access, has led to what some call a tale of two pandemics.

Cory Anderson: [00:27:07] Mike, it's clear that Delta is causing major challenges globally. What impact is it currently having here in the US, where a growing number of people seem to be considering this pandemic a thing of the past? And how do you ultimately see this playing out through the summer and into the fall?

Michael Osterholm: [00:27:23] Well, let me begin with the context, remember, as someone who thought that B117 or Alpha was going to have such an impact on the United States in April and May, and it didn't. I am again coming to this issue with a great dose of humility, with one exception. You can't argue with the data. As I will share with you in a moment here, what we're seeing in the United States, in a sense, is unprecedented. We're seeing 50 states and the District of Columbia all noting major increases in cases, all associated with Delta's presence. This is not some localized situation where few states may get hit and others appear to be spared. And again, given our international experience I just shared with you, I think this is a harbinger of things to come. As you know, I've said before and I'll comment more later with regard to one of

the questions we've had submitted this week. I never believed in this whole concept of seasonality with this virus. We have no evidence to date that that would be, in fact, how it would play out over the course of upcoming months. Maybe one day it will. But in fact, what we saw around the world over the course of the last six to eight months is this virus will take off wherever there's human wood to burn, it'll burn it. And I think that that's the message we have to get out to people. So I take this Delta variant surge very, very seriously. The good news is that because of the level of vaccination, we won't see a national surge that was equivalent in nature to what we saw in January, particularly with the deaths and severe illness. We're going to see a lot of severe illnesses in younger people, but they won't be equal to the number of severe illness we saw in those older who are now vaccinated. But having said that, let me just walk through and just tell you what the earliest days of this variant explosion here in the United States is doing. Right now, it is clearly the dominant variant in the country, making up over 83 percent of all the variants associated with US cases. In those areas of the country where it was dominant earlier are seeing it play out, just as we might expect. As a quick reminder of our journey since winter, remember, we had record high cases, hospitalization and deaths in January, followed by a precipitous decline throughout February and into March. I'll talk more about this later. But this does not reflect anything to do with seasonality or for, I believe, anything to do with human mitigation. This is the natural ebb and flow of the virus that we've seen time and time again around the world. Before we get into the latest eppy, though, I also do want to remind everyone of just where we're at with our current vaccination rates. You heard me put out a lot of numbers before. I'm sure you have forgotten them all. But at this point, if you look at all ages in this country, 56 percent have had one or more doses, only 49 percent are fully vaccinated. If you look at 18 and older, 68 percent have had one dose, 60 percent are fully vaccinated. If you look at 65 and older, 89 percent have had one dose, 80 percent are fully vaccinated. What we're seeing over these major upticks in activity across the country, where in every state we have pockets of under vaccinated people. And if I leave you with no other number, no other number from this podcast, this is the number you must remember. At this moment, we estimate that there's over a 100,000,000 people in this country who have not been vaccinated, nor have they had covid to date to develop immunity against infection. One hundred million. That's what we're up against right now. And this virus, as it's spreading through the states, has ample number of humans to infect, to bring about major increases in cases. If one looks at where we're at right now, the seven day average for cases in the US is nearly 38,000, up 195 percent

over the last two weeks. We actually had a 13 percent decrease in testing. And yet we saw this big increase. More than 25,000 Americans are currently hospitalized, up to 46 percent over the last two weeks, our highest total since May. One month ago on June 20th, there were less than 17,000 hospitalized individuals. Today it's up to 25,000, with covid. We're reporting an average of 250 deaths a day, which is surely better than the winter peak of 3,300 deaths. But they're up 42 percent in the last two weeks. If you look at state activity overall in the last two weeks, all fifty one states, including the District of Columbia, have reported an increase in cases. All but two states have reported increases greater than 50 percent. 40 states, including the District of Columbia, are reporting increases of greater than 100 percent and 16 states are reporting increases of 200 percent. As expected, the rise in cases is now causing an increase in hospitalizations. 44 states with increase in hospitalizations over the last 14 days. 33 with increases greater than 20 percent. 17 with increases greater than 50 percent. 17 states are reporting case rates at or above the current national level. Good news that I can bring in otherwise is bad news is, again, the reduced number of severe illnesses and deaths relative to what we saw in the peak given those same case numbers. They're still going to be bad, but not as bad. And vaccine is playing a key role in that. If we look at the hottest spots in the United States, the surge has been dramatic, with cases, hospitalizations and ICU admissions currently growing at a faster rate than we saw with previous waves, including that winter peak. So in other words, if we plot the actual increase in intensive care bed needs and hospitalizations right now in Arkansas, Florida, Mississippi, Missouri and Nevada, all are seeing major increases in these areas. Now, how does this reconcile that I just said less severe illness or disease?. These are younger people who are critically ill, who are actually in ICUs and oftentimes staying there for weeks. But a smaller percentage of them are dying than we would have seen in the previous peak where we had highly vulnerable 65 years and older individuals infected. The same is true in terms of number of serious illnesses. What's happening is, percentage wise, people in their 20s, 30s and 40s have a smaller percentage of those who get infected, who have severe disease. But because that pyramid of population, there are more of them we're seeing at the same challenge in terms of overall number that are being hospitalized in intensive care units. So overall, there's fewer of them going into intensive care as a percentage of population than would have in the previous peak with 65 years of age and older. But they're nonetheless, because there are so many more people in those age groups, we're seeing this real challenge in our ICU care and this can be expected to continue. Just a really quick

example. And then we'll move on. Take Arkansas right now, 35 percent of their residents are fully vaccinated, only 66 percent of those 65 years of age and older. It currently has the highest hospital case rates in the US. Hospitalizations are growing quickly, with greater than 780 currently admitted, it nearly doubled in the last two weeks. If this trend continues, the state will set record high hospitalizations in just two weeks. Same situation is playing out in neighboring Missouri. 40 percent of all residents are fully vaccinated. Only 74 percent of those 65 years of age and older. It has the third highest case rate in the US. Hospitalizations have more than doubled since June. Florida, 48 percent of all residents are vaccinated, 79 percent of those 65 years of age and older, similar to the national average of 80 percent. It has the second highest case rate in the US, up 400 percent in just the last two weeks. Remember, this is the open Florida model. One month ago, statewide hospitalizations were 1,800. Now they are greater than 5,100 and rising quickly. That's the experience we can expect to see in a number of states. While again, the surge of cases last summer were primarily in the Sunbelt states, we didn't see all the other states start to light up a bit, and we're seeing that now. I'm not suggesting that what we're seeing happen right now in Florida, Missouri, Arkansas is going to happen everywhere in the country. But we are seeing the increases beginning in all those other states. And it's very possible that a number of them will end up looking like what we're seeing happen in those states. So what are the key messages here? Number one is the country is now entering another surge despite it being summer and despite having a largely successful vaccination campaign. For those that didn't want to hear that, including the media, I have to tell you, I had so much pushback from the media over the last six to eight weeks, basically reminding me what you said it was going to be a problem in March and it wasn't. You said a problem in April. Well, it was if you were in Michigan and Minnesota, you're right. But no one wanted to hear the fact that the pandemic was not over. And so I think it's challenging all of us to understand. Wait a minute, we were celebrating on July 4th, a sense kind of freedom from the pandemic. What's happened? Truth is that Delta poses a challenge to all the countries in the world and we're not an exception. What we've seen play out in Israel and the UK will play out here. But it's not yet to be determined how much of that impact vaccines will have in blunting Delta's effects in this country. If we look at the UK and Israel, we're seeing benefits of vaccination. Absolutely. But their uptake in older individuals who are at the highest risk for severe disease, and death is much higher than ours. In England, remember I said before, 95 percent of those 65 years of age old are fully vaccinated. In Israel, 90 percent of those 60 years of age and older are fully

vaccinated. While in the U.S., just 80 percent of 65 year olds and older are fully vaccinated. This represents many, many individuals who are at high risk yet of serious disease and death. And if you look at the wide disparity among states, for those 65 years of age and older, Florida 79 percent, Nevada 74 percent, Missouri 74 percent, Mississippi 72 percent, Arkansas only 66 percent. There are a lot of our elderly older population that in the past have been disproportionately impacted by this pandemic who are still vulnerable to this virus and could very well, together with the increased number of younger people in ICUs, show up in those same intensive care units. I'm convinced Delta will spread widely once it reaches areas of the country that have susceptible people. I mentioned earlier the one hundred million number. Keep that in mind. That's a lot of people for this virus to infect examples of outbreaks in L.A. County, New York City, areas with vaccination rates exceeding the national average. Emphasize this point. Look what's happening in those areas. They thought they were done. Both areas declared basically victory over the pandemic several months ago. So we determine our own fate. I think the good news, if there is any, comes from a dear colleague, Eric Topol, who I believe is one of the most learned and wise followers of this pandemic. In a July 20th tweet, he reminded us both Arkansas and Vermont have greater than 90 percent Delta prevalence. Arkansas 35 percent fully vaccinated, highest case rates and rising hospital and deaths. Vermont 67 percent fully vaccinated, almost twice that number of that seen in Arkansas, seeing case growth rate, but only 2 per 100,000 and a total of three people hospitalized statewide. Now, that may change in Vermont, but again, we've got to get people vaccinated. If there's anything mission one, two and three priorities. We've got to get people vaccinated.

Cory Anderson: [00:40:11] Last week, US Surgeon General Vivek Murthy issued an advisory on health misinformation or information that is false, inaccurate or misleading, according to the best available evidence at the time. Although health misinformation has existed for decades, the advisory stated that the, quote, "rapidly changing information environment has made it easier for misinformation to spread at unprecedented speed and scale." Dr. Murthy prefaced the advisory with the following, quote, "I am urging all Americans to help slow the spread of health misinformation during the covid-19 pandemic and beyond. Health misinformation is a serious threat to public health. It can cause confusion, sow mistrust, harm people's health, and undermine public health efforts. Limiting the spread of health misinformation is a moral and civic imperative that will require a whole of society effort." Mike, what are your thoughts on this advisory? Do

you share similar concerns about health misinformation? And if so, what can be done to help address the problem?

Michael Osterholm: [00:41:11] Well, all one has to do is look at my incoming email and you can see both a combination of misinformation, disinformation, efforts that are widespread in the country. I have to start out by saying that I think one of the most gifted and critical individuals in our response to covid-19 in this country is Surgeon General Vivek Murthy. Vivek and I are dear friends. So I have to disclose that up front. But I am so impressed with the leadership that he's been bringing to this issue, even before he came on as Surgeon General in the Biden administration. And so I want to say I agree with him about the concept of information and the challenges of getting the correct information in a way that's understood and believed by society. But as that old line goes, you can bring a horse to water, but you can't teach it drink. I think we have to begin to understand when is it that our messages could be better? I mean, is it that messages could be more effective? And does that mean necessarily you'll see a change in the actual behavior of the individual with that information? I considered going through the Surgeon General's report on this information and detailing why I support the concept of what's happening. But in fact, I'm going to not do that. Rather, I'm going to reflect on lessons I've been learning over the course of the last year and a half from a mentor that many of you are aware of. Dr. Randy Olson has been someone who is a godsend when it comes to the science of communication and has helped us with this podcast, try to deliver a more concise and effective message. And Randy is someone who is ahead of his time in terms of understanding the issue of communication. He's a Ph.D. in biology from Harvard. He became a tenured professor of marine biology at the University of New Hampshire in 1992. And then he changed careers by moving to Hollywood and entering film school at the University of Southern California. He has written multiple books on the issues of science, communication, and what we as a scientific community must do to effectively share that kind of information which results in change. And he's surely led the way on things around climate. Well, one of the things that Randy has really promoted and in many conversations with him I have come to agree, is how do you challenge the anti-science? I'm not going to call it misinformation, disinformation, I'll call it anti-science. And what do you compare that to? Randy's come up with the term, which he owns, and I thank him for sharing it with me, called "corrected science." Anti-science versus corrected science. What does that mean? Why is that important? And I hope this will resonate with you and understanding how we communicate with others

with what's happening. If I say to you, inject yourself with bleach, everyone would agree. I think who's listening to this podcast? That's anti-science. There's no scientific data to support that. But if I look and make the statement that N95 masks are not worth wearing, oh, wait a minute, maybe they are, that could be well understood as corrected science, meaning that we've made a journey over what's been needed or not needed to provide respiratory protection against this virus. Now is the time for us to actually begin to understand the anti-science versus corrected science and what this means. I have been challenged by the many different messages coming out of public health over the course of this pandemic, many of which have confused people. Do you need a mask on, quote unquote, or do you not right now? I can go through a laundry list of those issues. When I was on Meet the Press last October, I actually said we don't have a consolidated one voice with communications in this country. And that by itself is not a problem if it's a voice that is changing because we learn more, and as we learn more, we update what we do. And I think the problem is just getting worse. At this point, the public health community has been really confounded by voices of unproven ideas from outside the area of public health. We know that. I would suggest that the accusation of misinformation just isn't working. It hits the wall of our facts versus your facts and goes no further. It's time for us in the public health and the scientific community, I think, to take on a whole new terminology and a new approach. Science is an evolutionary process. Findings are stated, the model created, the model is tested, new findings are stated, the model's corrected. The cycle continues indefinitely. That's what makes us better. So if we change a conclusion about vaccines or about mitigation strategies or about what's going to happen with the epidemiology of the disease, that's the cycle continuing indefinitely. So such a process does leave behind a trail of previous ideas and findings. This is the corrected-science that needs a broad, simple label. The dismissed material from the past is not proof that the current thinking is wrong. It's all in corrected science. And I think at this point we lack that singular voice. How do we bring this about? We will continue to hear among those spreading misinformation, disinformation, as others have labeled it. And their voice doesn't change much. They have a point, they stick with it and they go on and on and not the vaccines, put a computer chip in, you know, they basically make you sterile, etcetera, etcetera, etcetera. So I think towards this end, we need to understand what do we do to promote the concept of corrected science? And I know that this may seem kind of obtuse, but I'm really concerned. Over the course of the next several weeks, we're going to hear all about more vaccine breakthroughs. And the challenge is going to be, wait does this

vaccine work or not? We're going to have big challenges as to who should get vaccinated and why, relative to what their level of protection is in their community. And with each of these comes this kind of misinformation, disinformation. And what we need to do is figure out how do we tell a story where we went from the earliest days of saying these vaccines are perfectly safe to one where, yes, young males are at a slight increased risk of developing pericarditis with that vaccine. But that that, in fact, still implies safety and it is much safer than getting the disease itself, etc.. Our communication needs to evolve over time. To date, the current administration has helped create, I think, the hugely successful vaccination program that is rapidly evolving into a search for the right vaccine. Just think about it. We have this goal in mind of July 4th. We're going to hit this certain number and then everything was going to be OK. And now we're having this big surge. Well, if you look at the science, we need to correct our science. But that didn't mean we were wrong. That meant that we're learning more. That's the difference between disinformation, injecting bleach and saying, now here's where we're at. And we've got to do a much, much better job of using corrected science, and Randy, I thank you for your input on this issue. I think it's very important.

Cory Anderson: [00:49:23] Now on to our Covid Query segment. This is the part of the podcast where we try to answer questions about decisions you, the listener, are trying to make, the situations you are attempting to navigate your way through, and the risks you are assessing each day in this post-vaccination covid world. Our covid query this week is from Marena, who wrote, quote, "I am familiar with your conviction that covid-19 is not a seasonal illness, but can you please educate us on what exactly makes an illness seasonal? When people talk about it, all they refer to is the move indoors, which in this day and age applies every bit as much to air conditioning as to heating in the winter. I know that low humidity plays a role in helping a virus thrive, and it stands to reason that an aerosol spreading virus will transmit easily in a poorly ventilated, crowded indoor space. But is there anything inherent in the disease rather than just the environmental and behavioral factors that would make it seasonal?" Mike, do you have any more insight on seasonality that you could share with Marena and our listeners?

Michael Osterholm: [00:50:20] Well, this is one of those very classic examples, the more I learn, the less I know. The seasonality for the transmission of infectious diseases is a well-recognized part of the epidemiology of a number of infectious diseases. And it varies. It can be both the summertime or wintertime concept. For example, polio and

hepatitis A, both enteric related transmitted viruses, were always noted to have increased during the summer months, when at that point it may be just the ability for people to be together, water sources, whatever, food. And that transmission occurred that way, or how much of it had to do with there may actually have been increased infected individuals for reasons we don't know. And as you're aware, we often see the wintertime transmitted agents, those which we believe because of humidity or daylight length or a combination of factors means there's enhanced transmission during that time. But we've kind of turned that on its head. I'll give a case in point. In 2009, when we had the H1N1 pandemic of influenza, started in late March here in the United States, took off by late April. Case numbers peaked in the first wave came down. And for the months, pretty much of the end of May through August, we had very little activity here. And then we begin to see the case numbers increase in the fall of 2009, starting in late August in the south, peaking in late September throughout the rest of the United States and much of the northern hemisphere. And then case numbers dropping precipitously long before the vaccine got here. And there was no efforts made at that time for mitigation. We weren't masking, distancing, whatever. And what reason I bring this one up because that's what we normally expect to see with influenza pandemics, that they don't start out seasonally, but eventually H1N1 did that. It basically became a seasonal virus over the years of 2010-2011, 2011-2012. Well, what happened also, though, during 2009 was the fact that the other respiratory viruses we would expect to see were virtually absent in the fall and winter of 2009 and 2010. Why that pandemic strain would have an impact and then we don't know. But they, too, then, including the other influenza strains, came back. That was a kind of a warning, you might say, that there are some very complicated connection between why certain viruses get transmitted and not. Then in addition, if you look at influenza viruses in general, we've always been struck by the fact that there are really two patterns. There's a seasonal pattern that affects northern and southern hemispheres, where in the winter time of the northern hemisphere, we see flu transmission in the wintertime of the southern hemisphere, we see flu transmission. That's how we end up determining what strains of virus to put in our vaccines. Looking always at what's happening in the other hemisphere, six months or more ahead of when it's going to hit us. But we never talk about is if you look at the tropics, we see transmission year round. It doesn't change. And that has by itself been one of those things. Well, why is that? If humidity or lack thereof is so important, why does it transmit year round in the tropics? And in that sense, why would it not be transmitted in the summertime as opposed to the winter? And so we don't really fully

understand all the aspects of seasonality, how much the sunlight length play, how much does humidity play, etc. But seasonality does occur. There's no question about it. So fast forward to covid, we've just gone through the last 18 months of covid and all of last winter, again, we had the absence of the classic respiratory pathogens, including influenza, respiratory syncytial virus. Now, here we sit today and we're actually beginning to see respiratory syncytial virus transmitted in North America during the summer. What's happening? What's going on? That's not one we've seen now. We see that in the wintertime. So I think we all have to take a step back and acknowledge we don't really understand seasonality as much as we thought we did or how one virus or one respiratory pathogen can impact another. But the final piece is, is that we've had everybody want to rush to judgment to say that this pandemic was going to become a seasonal virus. And as I've said multiple times, if you look at the data around the world and I just shared that today, I don't see seasonality anywhere out there. You know, just eight weeks ago, the two hotspots in the world was Nepal, Pakistan and India and Argentina, Uruguay and Paraguay. Both of them had one thing in common. They were 30 degrees latitude. The difference was one was in the northern hemisphere and one is in the southern hemisphere. People who have said, oh, look, summer is going to warm it up and we're going to see this big peak in the fall winter. Bob Redfield said that last year about flu, get ready for the big combination of covid and flu. Flu never showed up at all. And so I, for one, said I did believe we could see a summertime surge. We saw it last year. Remember, last July was a heavy surge, particularly in the southern Sunbelt states, by the way, the same states that were impacted in a major way in January. What's going on there? July and January one explanation as well. They all went inside in the southern states in the July time period because of the heat for air conditioning. And this time it was the season that they got infected with. I think the bottom line is humility, one, two and three. We don't know. And I don't have any reason to believe that the fall or winter is going to be a big peak of cases. We could see Delta do just a hell of a job over the course of the next six to 10 weeks and bring this our population to a much higher level of immunity. Maybe it won't. Maybe we could see a surge in the winter and fall that is followed with the summer surge. The point of it is we don't know. So to answer your question about seasonality, please accept my humble apology. I know less about it today than I did when I was in graduate school. And we're learning a lot. Why it happens? I can't tell you. All the examples I just gave you argue against all the explanations I've seen why seasonality occurs. And this is one we have a lot to learn.

Cory Anderson: [00:56:55] As a reminder to any of our listeners looking to have your questions answered in the podcast, you can email them to us at osterholmupdate@umn.edu. Mike, you've asked our listeners to share a beautiful or special place that has helped them get through this pandemic. Can you share this week's beautiful place?

Michael Osterholm: [00:57:14] Thank you and I want to thank Martha, who sent us this very wonderful piece here about her beautiful or special place, and Martha shares with us the following: "my special place since the pandemic has been no further away than our backyard. I've spent many years cultivating plants and planting shrubs and trees that will look beautiful in the summer months and striking in the winter months, only to find myself too busy to pause and appreciate them. When the pandemic arrived, it felt as if everything paused. I began working virtually and my husband and I ceased most interaction with others, spending far more time at home. We reinvented life as a more quiet, contemplative experience than ever before. In the warmer months, we sat on the deck admiring the growing things and listening to the sounds of birds, frogs and crickets. When winter arrived, we bought a fire pit and bundled up in every kind of weather sitting outside on our deck, enjoying the sights and sounds of the lovely backyard that had escaped our notice for so long. We learned to live in the moment, noticing what was right before us and appreciating it more fully than ever before. We are fully vaccinated and have been fortunate enough not to lose loved ones during this painful time. We are doing more, while still exercising caution. But our habit of spending time in our backyard mindfully contemplating the beauty of nature is a ritual we will maintain. The pandemic has brought us so much hardship and trauma, but our quiet time outside is emblematic of the gifts that the pandemic has also brought." -Martha. Martha, thank you for that. It's a very important reminder that in this horrible, horrible time, it's up to us to be able to find the beauty in the world. And in this case, you find it in your own backyard. What a wonderful story. Thank you. I close this podcast today just saying again, we're going to be back. This is not a good time in the covid world. I hope that our news gets better over the weeks ahead. I fear it will not. We have to do everything we can to continue to try to get people vaccinated. As you know, I've characterized these groups of vaccine, affirmative vaccine, hesitant, and vaccine-hostile. I'm working hard as I can get people vaccinated in that vaccine-hesitant group, realizing that the hostile may be a lost cause. But anything you can do to help get people vaccinated is so important. I just want to thank you again for your support. Thank

you for your many cards, letters, and so forth, and just continue to know that if you're vaccinated, you've done what you have to do to protect yourself and your loved ones and however you can help others to find that same place. Please do. I wish you all a good week. Stay safe. Hopefully you're not going to be too confused, as I think a lot of information will be coming out in the next weeks that are going to be confusing at best about vaccines and so forth. But just know that we very much appreciate being with you. So thank you. Stay safe, be kind. Please be kind. Now is the time to be kind. Thank you.

Chris Dall: [01:00:41] Thanks for listening to this week's episode of the Osterholm Update. If you're enjoying the podcast, please subscribe, rate and review and be sure to keep up with the latest covid-19 news by visiting our website, CIDRAP.umn.edu. This podcast is supported in part by you, our listeners. If you would like to donate, please go to CIDRAP.umn.edu/donate-now. The Osterholm Update is produced by Maya Peters, Cory Anderson, and Angela Ulrich.